

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1-19. (Canceled)

20. (Previously Presented) A method of providing a debugging environment in a computing environment that includes first and second virtual machines, the method comprising:

inputting a formal specification written in a debugging specification language into a program code generator, the formal specification defining a high level debugging communication protocol for communication between the first and second virtual machines;

parsing the formal specification using the program code generator;

automatically generating a front-end debugger program portion from the formal specification based on the parsing of the formal specification, the front-end debugger program running on a first virtual machine, the front-end debugger program portion corresponding to a platform independent programming language which provides a high level debugging interface which can be accessed by a debugger application operating on a first virtual machine;

automatically generating a back-end debugger program code portion from the formal specification based on the parsing of the formal specification, the back-end debugger program code portion implementing a virtual machine debugging interface which provides the capability to control and communicate with a second virtual machine, the back-end debugger program code portion corresponding to a platform-specific programming language; and

wherein the front-end debugger program portion and the back-end debugger program code that are generated from the formal specification are compatible with each other and comply with the formal specification, thereby implementing the high-level communication protocol between the first and second virtual machines.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Previously Presented) A method as recited in claim 20, wherein the front-end processing module operates to send events that are generated in the second virtual machine to the front-end debugger program portion via the back-end debugger program code portion.

25. (Previously Presented) A method as recited in claim 24, wherein the front-end processing module performs one or more of the following operations:

- read and parse events from the back-end debugger code portion;
- convert the events from a first format into a second format which is compatible with the front end debugger code portion; and
- queue the events.

26. (Previously Presented) A method as recited in claim 24, wherein the front-end processing module further performs operations related to requests made through the front-end debugger program by the debugger application program.

27. (Previously Presented) A method as recited in claim 24, wherein the front-end processing module further performs one or more of the following operations:

- write formatted requests
- send the formatted requests to the back-end debugger code portion;
- associate at least one reply with the formatted requests;
- read and parse the at least one reply;
- deliver the at least one reply to an appropriate requester.

28. (Previously Presented) A method as recited in claim 27, wherein the back-end processing module performs operations related to event processing and request processing.

29. (Previously Presented) A method as recited in claim 28, wherein the event processing operations performed by the back-end processing module includes sending an event which was generated through the virtual machine debugging interface to the front-end debugging portion.

30. (Previously Presented) A method as recited in claim 29, wherein the request processing operations performed by the back-end processing module include one or more of the following operations:

- reading and parsing formatted requests from the front-end debugger program portion;
- forwarding the requests to the back-end debugger program code portion;
- sending the reply to the requests to the front-end debugger program portion.

31. (Previously Presented) A method as recited in claim 20, wherein the back-end processing module performs operations related to event processing and request processing.

32. (Previously Presented) A method as recited in claim 20, wherein the front-end debugger program portion includes a class which is used by the front-end debugger program portion to send and receive information over the debugging communication protocol.